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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,371	09/16/2003	Volkan H. Ozguz	Via Interconnect Patent A	1629

7590 01/13/2005  
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EXAMINER

CLARK, JASMINE JHIHAN B

ART UNIT PAPER NUMBER

2815

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/663,371	Applicant(s) OZGUZ ET AL.	
	Examiner Jasmine J. Clark	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: in page 4, between line 1 which is "Background of the Invention" and line 2 which is "The disclosed invention...", please add Field of the Invention--; and between line 4 which is "using vertical area vias" and line 5 which is "Industry continues..." please add Background and Related Art--. Appropriate correction is required.

### *Drawings*

2. The subject matter of this application admits of illustration by drawings to facilitate understanding of the invention. Applicants are required to submit formal drawings. No new matter may be introduced in the required drawings.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 5, 7-10, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Farnworth (US 5,973,396).

Farnworth teaches a device comprising a stackable layer (see Fig. 4) comprised of a substrate (die) 10 having an active surface 16 (see column 4, line 23) and an

Art Unit: 2815

inactive surface 18 (see column 4, line 23, the active surface 16 having an active circuitry) formed thereon, the active circuitry including at least one bond pad 24 (see Fig. 1B and see column 5, line 15); means 14 for electrically connecting bond pad 24 to the predefined location on the inactive surface.

Concerning claims 4 and 5, please see the above discussion under claims 1 and 2.

Concerning claims 7, 12 and 13, regarding the first substrate please see the above discussion, and a second substrate which is similar to the first substrate please see Fig. 3, where the first substrate and the second substrate are bonded together to form a stack. Concerning claims 12 and 13, a stacked electronic module comprised of means for electronic interconnection of each of at least two ministacks which comprises at least one via filled with electrically conductive material, please see the above discussion under claim 1. Similar to claims 7, 12 and 13 are claims 8-10.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 2815

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 6, 11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the reference as applied to claims 1, 2, 4, 5, 7-10, 12, and 13 above, and further in view of Ramm (6,448,174 B1).

As per the above discussion, the applied reference teaches connecting the electrically connecting 14 the bond pad to the predefined location on the inactive surface, wherein the electrically connecting 14 is made of for example "[O]ther suitable metals are known in the art...", but fails to teach wherein the electrically conductive material is a tungsten material. Hence, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use tungsten, as is notoriously known in the art, because tungsten is stronger than any other common metal at high temperature.

#### ***References Cited***

5. Lu et al. (US 2002/0164840 A1) show a structure of a semiconductor device having means, eg, 30 for electrically connecting a bond pad 20 to an I/O line 40. McMahon (US 6,075,712) shows a structure of a device comprising a semiconductor die, and means 232 for electrically connecting a conductive line 208 to a bond pad 237. However, none of this reference teaches the limitations as set forth in the claimed invention.

### ***Telephone Inquiry Contacts***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jasmine J. Clark whose telephone number is (571) 272-1726. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jjbc/01/04/05

**JASMINE CLARK**  
**PRIMARY EXAMINER**

